SANTA CRUZ BIOTECHNOLOGY, INC.

CHPPR siRNA (m): sc-142333

BACKGROUND

Fission and fusion mechanisms regulate mitochondrial morphology within the cell and occur during cell division and apoptosis. CHPPR (chondrocyte protein with a poly-proline region), also known as mitochondrial fission regulator 1, is a 333 amino acid mitochondrial protein that contains a short polyproline-rich region and, along with DRP1 and Fis1, is involved in mitochondrial fission. With high levels of expression in testes and embryonic cartilage, specifically hypertrophic chondrocytes, CHPPR is localized to the inner membrane of the mitochondria. In the testes of CHPPR-deficient mice, genes encoding enzymes that are involved in oxidative stress defense are downregulated, most likely resulting in reduced antioxidant activity. CHPPR is phosphorylated upon DNA damage, most likely by either ATM or ATR.

REFERENCES

1. van de Werken, R., et al. 1993. Modulation of tensin and vimentin expression in chick embryo developing cartilage and cultured differentiating chondrocytes. Eur. J. Biochem. 217: 781-790.
2. Tonachini, L., et al. 2002. Chondrocyte protein with a poly-proline region is a novel protein expressed by chondrocytes *in vitro* and *in vivo*. Biochim. Biophys. Acta 1577: 421-429.
3. Tonachini, L., et al. 2004. Chondrocyte protein with a poly-proline region (CHPPR) is a novel mitochondrial protein and promotes mitochondrial fission. J. Cell. Physiol. 201: 470-482.
4. Monticone, M., et al. 2007. Impaired expression of genes coding for reactive oxygen species scavenging enzymes in testes of Mtfr1/Chppr-deficient mice. Reproduction 134: 483-492.
5. Cheng, W.C., et al. 2008. Fis1 deficiency selects for compensatory mutations responsible for cell death and growth control defects. Cell Death Differ. 15: 1838-1846.
6. Debray, F.G., et al. 2008. Disorders of mitochondrial function. Curr. Opin. Pediatr. 20: 471-482.
7. Zhang, X., et al. 2008. Two small protein families, DYNAMIN-RELATED PROTEIN3 and FISSION1, are required for peroxisome fission in *Arabidopsis*. Plant J. 57: 146-159.

CHROMOSOMAL LOCATION

Genetic locus: Mtfr1 (mouse) mapping to 3 A2.

PRODUCT

CHPPR siRNA (m) is a pool of 3 target-specific 19-25 nt siRNAs designed to knock down gene expression. Each vial contains 3.3 nmol of lyophilized siRNA, sufficient for a 10 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see CHPPR shRNA Plasmid (m): sc-142333-SH and CHPPR shRNA (m) Lentiviral Particles: sc-142333-V as alternate gene silencing products.

For independent verification of CHPPR (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-142333A, sc-142333B and sc-142333C.

STORAGE AND RESUSPENSION

Store lyophilized siRNA duplex at -20° C with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at -20° C, avoid contact with RNAses and repeated freeze thaw cycles.

Resuspend lyophilized siRNA duplex in 330 µl of the RNAse-free water provided. Resuspension of the siRNA duplex in 330 µl of RNAse-free water makes a 10 µM solution in a 10 µM Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

CHPPR siRNA (m) is recommended for the inhibition of CHPPR expression in mouse cells.

SUPPORT REAGENTS

For optimal siRNA transfection efficiency, Santa Cruz Biotechnology's siRNA Transfection Reagent: sc-29528 (0.3 ml), siRNA Transfection Medium: sc-36868 (20 ml) and siRNA Dilution Buffer: sc-29527 (1.5 ml) are recommended. Control siRNAs or Fluorescein Conjugated Control siRNAs are available as 10 µM in 66 µl. Each contain a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA. Fluorescein Conjugated Control siRNAs include: sc-36869, sc-44239, sc-44240 and sc-44241. Control siRNAs include: sc-37007, sc-44230, sc-44231, sc-44232, sc-44233, sc-44234, sc-44235, sc-44236, sc-44237 and sc-44238.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor CHPPR gene expression knockdown using RT-PCR Primer: CHPPR (m)-PR: sc-142333-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.